

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			
<b>PRELIMINARY AMENDMENT</b>		Docket Number: <b>11728/3</b>	
Application Number <b>Not Yet Assigned</b>	Filing Date <b>Herewith</b>	Examiner	Art Unit
Invention Title <b>HIGHLY ENDURABLE HEAT INSULATING MATERIAL, METHOD FOR PRODUCTION THEREOF, USES THEREOF, AND WORKING METHOD THEREFOR</b>		Inventor(s) <b>MATSUI et al.</b>	

Assistant Commissioner for Patents  
Washington D.C. 20231

SIR:

Please amend the above-referenced patent application as follows:

In the Specification

Please amend the Title to - - HIGHLY ENDURABLE HEAT INSULATING MATERIAL, METHOD FOR PRODUCTION THEREOF, USES THEREOF, AND WORKING METHOD THEREFOR- -.

In the Claims

3. (Amended) A highly endurable heat insulating material according to claim 1, wherein the high-temperature property of the surface hardening material is similar to the high-temperature property of the flame sprayed film of a fire-resistant ceramic substance.
4. (Amended) A highly endurable heat insulating material according to claim 1, wherein the fire-resistant ceramic substance is at least one member selected from the group consisting of simple substances of alumina-silica substance, refractory clay, zirconia, mullite, zircon, magnesia, calcia, dolomite, corundum, bauxite, alumstone, silicon carbide, and chromite and complexes thereof.
5. (Amended) In the production of a highly endurable heat insulating material according to claim 1, a method for the production of the highly endurable heat insulating material characterized by coating the surface of an inorganic heat insulating fiber with the raw material composition for the surface hardening material and then lava flame spraying a fire-resistant ceramic powder material on the raw material composition of the surface hardening material

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thereby forming a coating film of the surface hardening material and the flame sprayed film of the heat-resistant ceramic substance.

6. (Amended) A furnace characterized by possessing a highly endurable heat insulating material set forth in claim 1 as part or whole of a fire-resistant article.
7. (Amended) A smoke discharging device characterized by possessing a highly endurable heat insulating material set forth in claim 1 as part or whole of a fire-resistant article.
8. (Amended) A tunnel characterized by possessing a highly endurable heat insulating material set forth in claim 1 as part or whole of a fire-resistant article.
9. (Amended) In working a highly endurable heat insulating material for the use set forth in claim 6, a working method characterized by setting an inorganic heat insulating fiber on an iron skin, a fire-resistant substrate, or a concrete, applying a surface hardening agent to the surface of the fiber, and subsequently forming a film of a fire-resistant ceramic substance by frame spraying on the coat of the surface hardening agent.

#### REMARKS

This Preliminary Amendment is being submitted to eliminate multiple dependent claims.

It is respectfully submitted that the subject matter of the present application is new, non-obvious, and useful. Prompt consideration and allowance of the application are respectfully requested.

Attached hereto is a marked-up version of the changes made by the current amendment. The attached page is captioned "Versions with markings to show changes made."

Dated: *Nov. 2, 2001*

Respectfully submitted

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

The title has been amended as follows:

[THERMALLY INSULATING MATERIAL HAVING EXCELLENT DURABILITY AND METHOD FOR PRODUCTION THEREOF, AND USE THEREOF AND METHOD FOR EXECUTION THEREOF]

HIGHLY ENDURABLE HEAT INSULATING MATERIAL, METHOD FOR PRODUCTION THEREOF, USES THEREOF, AND WORKING METHOD THEREFOR

The claims have been amended as follows:

3. (Amended) A highly endurable heat insulating material according to claim 1 [or 2], wherein the high-temperature property of the surface hardening material is similar to the high-temperature property of the flame sprayed film of a fire-resistant ceramic substance.
4. (Amended) A highly endurable heat insulating material according to [any one of claims 1-3] claim 1, wherein the fire-resistant ceramic substance is at least one member selected from the group consisting of simple substances of alumina-silica substance, refractory clay, zirconia, mullite, zircon, magnesia, calcia, dolomite, corundum, bauxite, alumstone, silicon carbide, and chromite and complexes thereof.
5. (Amended) In the production of a highly endurable heat insulating material according to [any one of claims 1-4] claim 1, a method for the production of the highly endurable heat insulating material characterized by coating the surface of an inorganic heat insulating fiber with the raw material composition for the surface hardening material and then lava flame spraying a fire-resistant ceramic powder material on the raw material composition of the surface hardening material thereby forming a coating film of the surface hardening material and the flame sprayed film of the heat-resistant ceramic substance.
6. (Amended) A furnace characterized by possessing a highly endurable heat insulating material set forth in [any one of claims 1-4] claim 1 as part or whole of a fire-resistant article.
7. (Amended) A smoke discharging device characterized by possessing a highly endurable heat insulating material set forth in [any one of claims 1-4] claim 1 as part or whole of a fire-resistant article.
8. (Amended) A tunnel characterized by possessing a highly endurable heat insulating material set forth in [any one of claims 1-4] claim 1 as part or whole of a fire-resistant article.
9. (Amended) In working a highly endurable heat insulating material for the use set forth in [any one of claims 6-9] claim 6, a working method characterized by setting an inorganic heat insulating fiber on an iron skin, a fire-resistant substrate, or a concrete,

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applying a surface hardening agent to the surface of the fiber, and subsequently forming a film of a fire-resistant ceramic substance by frame spraying on the coat of the surface hardening agent.

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